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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,424	07/27/2000	Mamoru Uchida	1403-0203P	2636

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EXAMINER

MAKI, STEVEN D

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/627,424

Applicant(s)

UCHIDA ET AL.

Examiner

Steven D. Maki

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

- 1) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 2) Claims 1 and 5 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for using an average length of 0.5 mm for the fibers, does not reasonably provide enablement for using an average length of 0.1 to 5 mm for the fibers. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The evidence of record, including the examples in the original disclosure, the 132 declaration filed 5-28-03 and the 132 declaration filed 3-12-04 shows that a ratio of $E1/E2$ falling within the claimed range is obtained for the claimed tire having the claimed glass or carbon fibers only when the average length for the fibers is 0.5 mm.

In **example #1 of the original specification**, the fiber length is 0.5 mm, which falls *within* the claimed range of 0.1 to 5 mm. For the tread in example #1 of the original specification, $E1/E2 = 1.42$, which falls *within* the claimed range of 1.1 to 4.

In **experiment #2 in the declaration filed 5-28-03**, the fiber length is 3.0 mm, which falls *within* the claimed range of 0.1 to 5.0 mm. The composition in experiment #2 in the declaration filed 5-28-03 and the composition in example #1 of the original disclosure are the same, except for the average length of the fibers. For the tread in experiment #2, $E1/E2 = 4.42$, which falls *outside* the claimed range of 1.1 to 4.

Experiment #2 in the declaration filed 5-28-03 shows that the claimed range of $E1/E2 = 1.1$ to 4 is not enabled for the entire claimed range of 0.1 to 5.0 mm for the average length for the fibers. In particular, Experiment #2 in the declaration filed 5-28-03 shows that the claimed range of $E1/E2 = 1.1$ to 4 is not enabled for an average fiber length of 3.0 mm. In other words, experiment #2 in the declaration filed 5-28-03 shows that the claimed property of $E1/E2 = 1.1 - 4$ cannot be obtained when using the combination of a fiber of claimed material, the fiber being oriented in the thickness direction as claimed, an average fiber diameter falling within the claimed range, an average fiber length of 3.0 mm falling within the claimed range and a hardness falling within the claimed range. Stated differently, experiment #2 fails to satisfy the claimed ratio $E1/E2 = 1.1$ to 4 even though the claimed limitations as to fiber orientation, type of fiber, amount of fiber, average fiber diameter and average fiber length are met. With respect to experiment #2 in the declaration filed 5-28-03, the original disclosure does not describe and enable what change(s) are required to obtain a ratio $E1/E2$ falling within the claimed range of 1.1 to 4 when using 5 parts glass fiber having an average diameter of 11 μm and an average fiber length of 3.0 mm.

In summary, the original disclosure enables the claimed $E1/E2$ ratio for the claimed tire when using an average fiber length of 0.5 mm. See example #1 (original specification). However, experiment #2 (declaration 5-28-03) shows that the claimed $E1/E2$ ratio for the claimed tire is not enabled when using a different (e.g. 3 mm) average fiber length falling within the claimed range of 0.1 to 5 mm.

3) **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '204 (JP 62-191204) in view of Japan '209 (JP 7-61209) and Japan '214 (JP 10-129214) and optionally German '792 (DE 3122792).**

Japan '204 discloses a **tire for use on snow and ice** having a ground contacting tread including **rubber** and **radially oriented non-metallic short fibers**. Japan '204 teaches that the tire has good skidproofing effects. Japan '204 does not specifically recite the hardness of the ground contacting tread. However, it would have been obvious to one of ordinary skill in the art to provide the rubber of Japan '204's tread with the claimed hardness of 45-75 degrees (a relatively low hardness) since Japan '209, also directed to a tire for use on snow and ice, suggests using a rubber having a hardness of 50-60 (a relatively low hardness) to avoid excessive wear and improve grip on snow and ice (paragraph 16 of machine translation). Japan '209 therefore strongly motivates one of ordinary skill in the art to use the claimed hardness in Japan '204's tread so as to improve grip on snow and ice of Japan '204's tire. Improvement in grip on snow and ice is desirable for Japan '204's tire since Japan '204's tire is for use on snow and ice.

As to the type of short fibers, it would have been obvious to use glass or carbon fibers having a length of 0.1-5 mm and an average diameter of 1-100 μm in Japan '204's tread in view of (a) Japan '204's suggestion to use radially oriented glass or carbon fibers having a length such as 1 mm (page 21 bottom right) and (b) Japan '214's teaching to use short fibers having a length of 0.2-1.0 mm (290-1000 μm) and a L/D of 200-2000 (column 3 paragraph 19) so that the short fibers can be fully radially oriented.

As to the fibers being glass fibers or carbon fibers, one of ordinary skill in the art would readily appreciate that glass fibers or carbon fibers would improve braking performance. See Japan '204 (abstract) and optionally German '792 (abstract). As to German '792, the following information was obtained during a partial oral translation of page 9 of German '792: The tread has a plurality of carbon fibers, which extend perpendicular of the tread and are embedded therein. The individual fibers can be woven into a fabric like mat and can be fastened therein or may form parts thereof with the mat being inserted or placed in the rubber mixture for the tread.

As to the amount of short fiber used and $E1 / E2$ (this ratio being descriptive of a small amount of radially oriented short fibers), it would have been obvious to use 3-20 parts short fiber in Japan '204's tread such that the tread defines the claimed ratio $E1/E2$ of 1.1 to 4 since (a) Japan '204, directed to a tire for use on snow and ice and having **radially oriented short fibers**, teaches using 5-60 parts short fiber in the tread, (b) Japan '209, directed to a tire for use on snow and ice, suggests limiting the amount of **short fibers** in a ground contacting portion of a tread to 2-10 parts to avoid inferior abrasion resistance and (c) Japan '214 teaches that when using **radially oriented short fibers**, care should be taken to use less than 30 parts short fibers because if more than 30 parts short fibers is used, the hardness of the tread will be high and the grip nature will fall. (paragraph 20 of machine translation).

No unexpected results over the above applied prior art has been shown. The result of improved braking performance when using radially oriented fibers is the expected result. See Japan '204's teaching to use radially oriented short fibers to obtain

good skid proofing. The result of improved abrasion resistance when using less short fibers is the expected result. See Japan '209's teaching to use 2-10 parts short fibers to avoid inferior abrasion resistance. Also see Japan '214's teaching to use less than 30 parts short fiber to obtain good anti-chinking ability.

4) Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '204 in view of Japan '209 and Japan '214 and optionally German '792 (DE 3122792) as applied above and further in view of Japan '603 (JP 3-258603).

As to claim 5, the limitation therein would have been obvious in view of Japan '603's teaching to fold a rubber sheet having fibers therein so as to obtain a radial orientation of the fibers for a tire tread; it again being noted that Japan '204 desires radially oriented short fibers for a tire tread. Claim 5 is written in product by process form. The description relating to calendaring fails to define a materially different product than that suggested by the applied prior art. See MPEP 2113. The folding language requires structure, and that structure is suggested by Japan '603.

Remarks

5) Applicant's arguments with respect to claims 1 and 5 are have been considered but are moot in view of the new ground(s) of rejection. This action is non-final since the 112 first paragraph rejection was not necessitated by amendment.

In view of applicant's statements at page 4 of the response filed 3-12-04, US 6374885 has been excluded as 102(e) type prior art under 35 USC 103(c).

In view of the certified English translation filed 3-12-04, applicant has perfected his 119 foreign priority claim and has thereby removed Europe 1006007 as prior art under 35 USC 102(a).

Applicant's arguments filed 3-12-04 have been fully considered but they are not persuasive.

Applicant states that the elastic modulus of a tread in which staple fibers are dispersed depends on largely the elastic modulus of the staple fiber itself. The examiner agrees and adds that Japan '204 teaches using the same fibers (glass fibers or carbon fibers) as claimed by applicant.

Applicant states that $1.1 \leq E1/E2 \leq 4$ is not satisfied merely by compounding a small amount of staple fibers but is also affected by the orientation. The examiner agrees and adds that the applied prior art teaches using radially oriented fibers of the claimed glass or carbon material (Japan '204) and using a small amount of short fibers (Japan '204, Japan '209, and Japan '214).

Applicant relies on **experiment #2 in the 5-28-03 declaration** as showing that $E1/E2$ exceeds 4 if a small amount of 5 parts by weight glass fiber is present. First: Experiment #2 in the declaration filed 5-28-03 is ambiguous since, as noted in the last office action, the length of the fibers in the declaration filed 5-28-03 is 3.0 mm instead of 0.3 mm as asserted by applicant on pages 9-10 of the response filed 10-28-03. The inconsistency between the average fiber length in the 132 declaration filed 5-28-03 and applicant's description of average fiber length in the response filed 10-28-03 (page 10 line 1) has not been clarified. Second: Example #1 of the original disclosure shows that

a E1/E2 ratio within the claimed range is obtained when a small amount of 5 parts by weight glass fiber is present. Third: Experiment #2 in the declaration filed 5-28-03 shows that applicant cannot obtain the claimed E1/E2 ratio when using an average fiber length of 3 mm falling within the claimed range of 0.1 to 5 mm.

Applicant argues that excellent braking performance on ice and abrasion resistance cannot be obtained unless the elastic modulus ratio is satisfied. The argument is not persuasive. First: Unexpected results for the entire range of 0.1 to 5 mm for average fiber length have not been shown. More specifically, "unexpected results" have only been shown for an average fiber length of 0.5 mm. Second: No unexpected results over the above applied prior art has been shown. The result of improved braking performance when using radially oriented fibers is the expected result. See Japan '204's teaching to use radially oriented short fibers to obtain good skid proofing. The result of improved abrasion resistance when using less short fibers is the expected result. See Japan '209's teaching to use 2-10 parts short fibers to avoid inferior abrasion resistance. Also see Japan '214's teaching to use less than 30 parts short fiber to obtain good anti-chinking ability

The declaration under 37 CFR 1.132 filed 3-12-04 is insufficient to overcome the rejection of claims 1 and 5 based upon Japan '204 in view of Japan '209 and Japan '214 and optionally German '792 as set forth in this Office action because: "Excellent results" for abrasion resistance are not obtained. In each of the experiments in the 3-12-04 declaration, an abrasion resistance of index 100 or greater is not obtained. For example, the abrasion resistance for each of the tires in experiments 1-4 in the

declaration filed 3-12-04 is lower than that for each of (1) examples 1 and 2 of the invention in the original disclosure, (2) the tire of comparative example 1 in the original disclosure and (3) experiment 3 (a comparative example) in the 132 declaration filed 5-28-03. Furthermore, the results in the 132 declaration filed 3-12-04 are not commensurate in scope with the entire range of 0.1 to 5 mm. Only the average fiber length 0.5 mm was tested.


6) No claim is allowed.

7) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
May 30, 2004


STEVEN D. MAKI
PRIMARY EXAMINER
~~GROUP 1300~~
Av 1733 5-30-04